

FORM PTO-1390 (REV. 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEYS DOCKET NUMBER 001940-2
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (If known, see 37 CFR 1.5) 10/089727
INTERNATIONAL APPLICATION NO. PCT/AU00/01209	INTERNATIONAL FILING DATE 5 October 2000	PRIORITY DATE CLAIMED 5 October 1999	
TITLE OF INVENTION <i>Method of Crushing A Tube</i>			
APPLICANT(S) FOR DO/EO/US Kevin William Weeks			
<p>Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:</p> <ol style="list-style-type: none"> <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. <input checked="" type="checkbox"/> This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)). <input type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (PCT Article 31). <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). <input type="checkbox"/> has been communicated by the International Bureau. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). <input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)). <ol style="list-style-type: none"> <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). <input type="checkbox"/> have been communicated by the International Bureau. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. <input checked="" type="checkbox"/> have not been made and will not be made. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <p>Items 11 to 20 below concern document(s) or information included:</p> <ol style="list-style-type: none"> <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. <input type="checkbox"/> A substitute specification. <input type="checkbox"/> A change of power of attorney and/or address letter. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). <input checked="" type="checkbox"/> Other items or information: Application Data Sheet, Figs.1-5 (2 sheets). 			

U.S. APPLICATION NO (if known, see 37 CFR 1.50) 10/089727		INTERNATIONAL APPLICATION NO PCT/AU00/01209		ATTORNEYS DOCKET NUMBER 001940-2	
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21. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492(a)(1) - (5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO... \$1040.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO... \$890.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(3)) paid to USPTO... \$740.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)... \$710.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)... \$100.00				CALCULATIONS		PTO USE ONLY	
				\$1040.00			
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$1,040.00			
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$0			
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE				
Total claims	12- 20 =	0	X \$18.00	\$0			
Independent claims	7- 3 =	4	X \$84.00	\$336.00			
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$280.00	\$0			
TOTAL OF ABOVE CALCULATIONS =				\$1,376.00			
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$688.00			
SUBTOTAL =				\$688.00			
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$0			
TOTAL NATIONAL FEE =				\$688.00			
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$40.00			
TOTAL FEES ENCLOSED =				\$728.00			
				Amount to be refunded:	\$		
				charged:	\$		

a. ☒ A check in the amount of **\$728.00** to cover the above fees is enclosed.

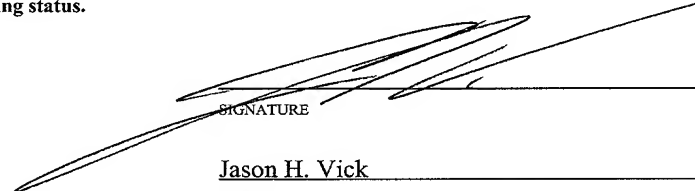
b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-2380 (1940-2). A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

NIXON PEABODY LLP
 8180 Greensboro Drive
 Suite 800
 McLean, Virginia 22102


 SIGNATURE
Jason H. Vick
 NAME
45,285
 REGISTRATION NUMBER

APPLICATION DATA SHEET

Electronic Version 0.0.11

Stylesheet Version: 1.0

Attorney Docket Number: 001940-2

Publication Filing Type:

new-utility

Application Type:

utility

Title of Invention:

METHOD OF CRUSHING A TUBE

Suggested Representative Figure:

Fig.5

Legal Representative:

Attorney or Agent:

Jason H. VICK

Registration Number:

45285

Customer Number Correspondence Address:

22204

22204

Continuity Data:

This application is a 371 of international PCT/AU00/01209 A1 2000-10-05 Published

Foreign Priority:

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1999-10-05

Priority Claimed

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT Application of)
Kevin William WEEKS) Art Unit: unknown
U.S. National Stage Patent Application)
based on Australian International Appln. No. PCT/AU00/01209) Examiner: unknown
International Filing Date: 5 October 2000)
For: *Method of Crushing a Tube*)

PRELIMINARY AMENDMENT

Director of Patents and Trademarks
Washington, D.C. 20231

April 4, 2002

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please cancel claim 6 without prejudice or disclaimer.

Please add new claims 9-13 as follows:

- 9. A tube formed according to the method of claim 1.
- 10. A tube formed according to the method of claim 2.
- 11. A tube formed according to the method of claim 3.
- 12. A tube formed according to the method of claim 4.
- 13. A tube formed according to the method of claim 5.--

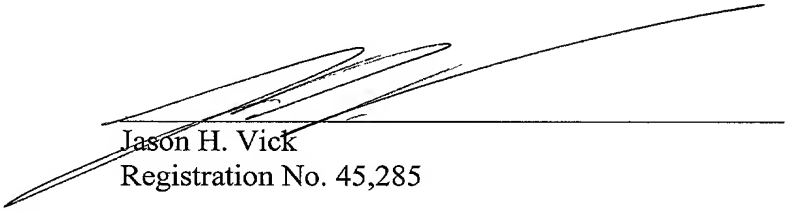
REMARKS

Claims 1-5 and 7-13 are pending. By this amendment claim 6 is canceled and claims 9-13 are added to remove multiple dependencies.

Examination on the merits is respectfully requested.

Respectfully submitted,

NIXON PEABODY LLP



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JHV/kbd

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"METHOD OF CRUSHING A TUBE"TECHNICAL FIELD

5 This invention relates to a method of crushing a tube.

The invention has particular, but not exclusive, application in preparing the end of a tube for connection with another member via a conventional fixing element such as a bolt.

10 The invention has particular utility in crushing the end of a web. As used herein "web" is used to refer to a strut or bracing element which extends between the upper and lower chord of a roof truss.

DISCLOSURE OF INVENTION

15 According to one aspect the invention resides in a method of crushing a tube, the method including:-

pressing together opposed portions of the tube such that the opposed portions abut to define a land which is adapted to receive a fixing element, wherein opposed lateral portions of the tube adjacent the land do not abut but
20 rather define sub-tubes which straddle the land and which extend lengthwise of the tube.

According to another aspect the invention resides in a method of forming a flattened region in a tube, the method including pressing together opposed portions of the tube, whilst not pressing together lateral opposed portions of the
25 tube.

According to another aspect the invention resides in a method of forming a flattened region in a tube, the method including selectively pinching opposed portions of the tube together such that the opposed portions of the tubes abut at a central location and such that lateral sub-tubes are defined which straddle the
30 pinched portion.

According to another aspect the invention resides in a method of forming a land on a tube, the method including:-

compressing opposed peripheral portions into abutment to define the land, such that lateral ribs extend along either side of the land, the ribs being formed by the portions of the tube adjacent the abutting portions which define the land.

5 According to another aspect the invention resides in a method of crushing a tube, the method including:-

crushing the tube between a pair of opposed crush members, at least one of the crush members being substantially narrower than the corresponding dimension of the tube and engaging the tube in a substantially central location
10 whereby a central crushed region is defined between a pair of lateral non-crushed regions, said crushed region being adapted to receive a fixing element.

According to another aspect the invention resides in a tube including a crushed region wherein opposed portions of the tube have been crushed together to abut and define a land which is adapted to receive a fixing element,
15 the tube further including longitudinally extending non-crushed regions located laterally either side of the crushed region.

According to another aspect the invention resides in a tube including:-

a land at an end of the tube formed by compressing opposed peripheral portions of the tube into abutment, and
20 ribs extending along either side of the land and formed by the portions of the tubular member adjacent the abutting peripheral portions.

BRIEF DESCRIPTION OF DRAWINGS

25 Reference will now be made to the accompanying Figures which illustrate preferred embodiment of the invention and in which:-

FIG 1 is a plan view of a tube having a crushed or flattened end;

FIG 2 is a frontal elevation of the tube of FIG 1;

FIG 3 is a right side elevation of the tube of FIG 1 with a bolt head present;
30

FIG 4 is a right side elevation of the tube of FIG 1 with the bolt head absent; and

FIG 5 is a right side elevation of the tube of FIG 1 with the nut and bolt present and with the tube fastened to a planer surface.

BEST MODE

5

Referring firstly to FIG 1, there is shown in plan a metallic tube 10. Tube 10 may be, for example, a web which in use extends between the upper and lower chords of a roof truss.

10 Tube 10 is originally formed from a planer sheet of material which is folded about a longitudinal axis to define the tube with an overlapping longitudinal seam 12 as best shown in FIG 2.

The seam may be welded, riveted, glued or fixed by any known means. However, the preferred embodiment utilises an integral stitching method which swages together material in the overlapping seam region.

15 With reference to FIG 2, it will be noted that the end of the tube is tapered in frontal elevation. Furthermore, referring to FIG 1, a substantially triangular region 14 is more aggressively tapered and is pressed together into an abutting relationship adjacent the end of the tube.

20 Referring to FIG 3, it will be noted that in a central region 18 the opposed peripheral portions of the tube are crushed together so as to be abutting and planer. In contrast, open sections 20 are defined either side of the central crushed region 18. Each of the open sections 20 defines a sub-tube or rib which extends longitudinally of the tube 10 either side of the central crushed region 18.

25 The central crushed region 18 is adapted to receive a fixing element by virtue of one or more punched holes 16. As shown in FIG 3, the punched hole 16 receives a fixing element in the form of a nut and bolt arrangement 22.

30 The central crushed region 18 provides a flattened land which is adapted to receive a conventional fixing element such as nut and bolt arrangement 22. In contrast, the lateral non-crushed regions 20 provide additional structural strength as compared to a tube in which the entire end of the tube is pinched into an abutting relationship.

Referring now to FIG 5, it will be noted that when the tube is fastened a planer surface (eg the upper or lower chord of a truss), the end of the tube is deformed in that ribs or sub-tubes 20 are deformed upwardly in a wing-like manner by virtue of the engagement of the underside of the tube with the planer surface of the chord. It will be appreciated that upward wing-like deformation of the sub-tubes 20 occurs under load, ie. the bolt is under tension as it is tightened. This results in a secure joint between the tube and chord.

It will, of course, be realised that the above has been given by way of illustrative example of the invention. Any variations, modifications, or omissions, as would be apparent to persons skilled in the art, are deemed to fall within the broad scope of this invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A method of crushing a tube, the method including:-
 pressing together opposed portions of the tube such that the opposed
 5 portions abut to define a land which is adapted to receive a fixing element,
 wherein opposed lateral portions of the tube adjacent the land do not abut but
 rather define sub-tubes which straddle the land and which extend lengthwise of
 the tube.
- 10 2. A method of forming a flattened region in a tube, the method including
 pressing together opposed portions of the tube, whilst not pressing together
 lateral opposed portions of the tube.
- 15 3. A method of forming a flattened region in a tube, the method including
 selectively pinching opposed portions of the tube together such that the
 opposed portions of the tubes abut at a central location and such that lateral
 sub-tubes are defined which straddle the pinched portion.
- 20 4. A method of forming a land on a tube, the method including:-
 compressing opposed peripheral portions into abutment to define the
 land, such that lateral ribs extend along either side of the land, the ribs being
 formed by the portions of the tube adjacent the abutting portions which define
 the land.
- 25 5. A method of crushing a tube, the method including:
 crushing the tube between a pair of opposed crush members, at least
 one of the crush members being substantially narrower than the corresponding
 dimension of the tube and engaging the tube in a substantially central location
 whereby a central crushed region is defined between a pair of lateral non-
 30 crushed regions, said crushed region being adapted to receive a fixing element.
6. A tube formed according to the method of any one of claims 1 to 5.

7. A tube including a crushed region wherein opposed portions of the tube have been crushed together to abut and define a land which is adapted to receive a fixing element, the tube further including longitudinally extending non-crushed regions located laterally either side of the crushed region.

8. A tube including:-

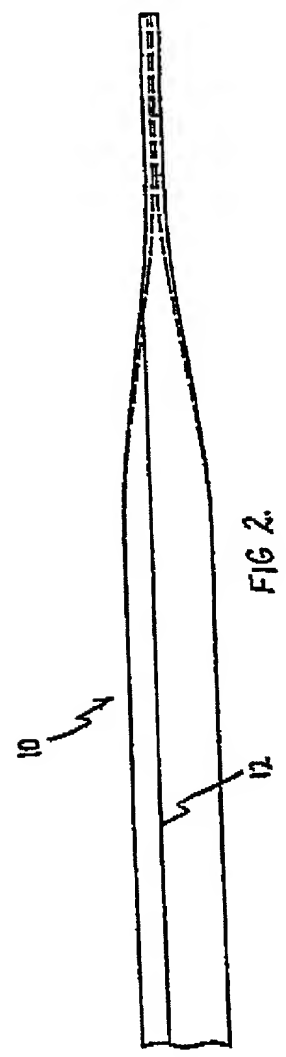
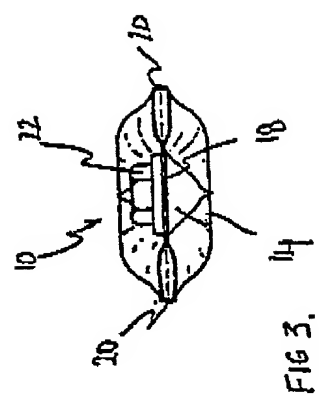
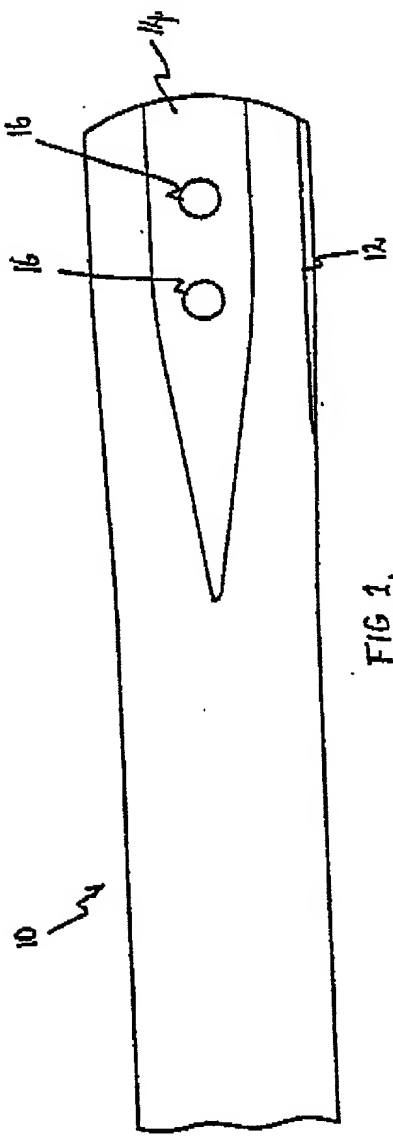
a land at an end of the tube formed by compressing opposed peripheral portions of the tube into abutment, and

10 ribs extending along either side of the land and formed by the portions of the tubular member adjacent the abutting peripheral portions.

ABSTRACT

A tube includes a central crushed region (18) for receiving a fixing element (22) and lateral non-crushed regions (20) disposed either side of the crushed region (18) which provide additional structural strength to the tube.

18 20 22



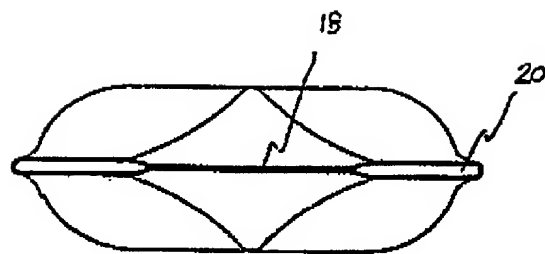


FIG 4.

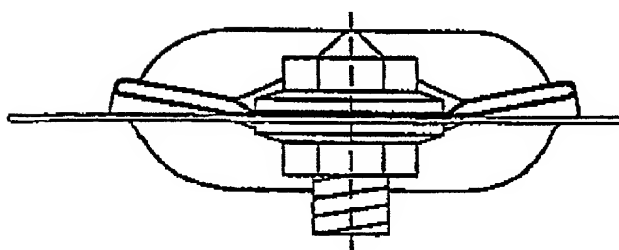


FIG 5.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND POWER OF ATTORNEY

As the below named inventor(s), I/we declare that:

This declaration is directed to:

- ☒ The attached application, or
- ☐ Application No. _____, filed on _____,
- ☐ as amended on _____ (if applicable);

I/We believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/We have reviewed and understood the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;

I/We acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including material information which became available between the filing date of the prior application and the National or PCT International filing date of the continuation-in-part application, if applicable; and

All statements made herein of my/our knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

I/We hereby appoint

Practitioners at Customer Number 21204 as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

FULL NAME OF INVENTOR(S)

Inventor one: Karin William WEEKS Citizen of: AustraliaSignature: X [Signature] Date: X 26-3-02

Inventor two: _____ Citizen of: _____

Signature: _____ Date: _____

Inventor three: _____ Citizen of: _____

Signature: _____ Date: _____

Inventor four: _____ Citizen of: _____

Signature: _____ Date: _____

Briefing Note: This collection of information is required by 18 U.S.C. 113 and 37 CFR 1.63. The information is used by the public to file (and the PTO to process) an application. Confidentiality is provided by 18 U.S.C. 113 and 37 CFR 1.63. This form is required to take I reserve my rights. This time will vary depending upon the needs of the individual firm. Any statements on the return of this form are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20591. DO NOT SEND SIGNATURE COMPLETED FORMS TO THIS ADDRESS. SEND TO: Chief Information Officer, Washington, DC 20591

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